

WHAT IS CLAIMED IS:

1. A support assembly for attaching a wall or top of a semi-membrane tank to a surrounding support structure, said assembly comprising a first member fixedly attachable to the surrounding support structure, and a second member fixedly attachable to the tank wall or top, wherein the first and second members include interlocked complementary angled ramp surfaces slidably engaged in a manner which permits movement of the second member relative to the first member in a direction parallel to the axis of the ramping surfaces and prevents movement of the second member relative to the first member in a direction perpendicular to the ramping surfaces.
2. The support assembly according to claim 1 wherein the interlocked complementary angled ramp surfaces are slidingly engaged in a manner which prevents movement of the second member relative to the first member in the cross-ramp direction.
3. The support assembly according to claim 1 wherein the interlocked complementary angled ramp surfaces are slidably engaged in a manner which permits movement of the second member relative to the first member in the cross-ramp direction.
4. The support assembly according to any of claims 1-3 wherein the second member is rigidly attachable to the wall or top through load bearing insulation.
5. The support assembly according to claim 4, wherein said load bearing insulation is a block comprising two pieces securable to one another.
6. The support assembly according to claim 4 or claim 5 wherein said load bearing insulation includes a notch conforming to the shape of a securing structure projecting outwardly from the tank wall or top.
7. The support assembly according to any of claims 1-4 wherein the second member is adapted to secure insulation panels to the tank.
8. A support system for planar walls of a semi-membrane tank, said support system providing at least one point of thermal fixity for each wall, comprising a vertically

extending support structure surrounding the tank and an array of support assemblies spaced over the outer surface of each wall connecting the wall to the surrounding support structure, said array including a plurality of support assemblies according to claim 2 spaced horizontally from the at least one point of thermal fixity and oriented horizontally with their second members ramping away from said at least one point, thereby providing vertical support for each wall and permitting the second members to move perpendicularly to the plane of the wall and horizontally in the ramp direction parallel to the plane of the wall.

9. The support system according to claim 8, wherein said array includes a plurality of support assemblies according to claim 3.
10. The support system according to claim 9 wherein the walls each have one point of thermal fixity having no rigid attachment connecting the tank wall to the surrounding support structure.
11. The support system according to claim 10 wherein the point of thermal fixity of each wall is at its approximate horizontal midpoint and proximate its vertical low point, and wherein the array of supports spaced over the outer surfaces of each wall includes a plurality of support assemblies according to claim 2 spaced radially from, and disposed such that they ramp away from, the point of thermal fixity.
12. The support system according to any of claims 8-11 wherein the support assemblies according to claim 1 are disposed such that their second members ramp away from a line extending vertically through the at least one point of thermal fixity.
13. The support system according to any of claims 8-12 wherein the support assemblies are rigidly attachable to the walls through load-bearing insulation.
14. The support system according to claim 8 wherein said walls are of curved-plate construction with horizontally extending cusps between curved-plates, said array consisting of support assemblies according to claim 2 arranged along said cusps.

15. The support system according to claim 14 wherein the support assemblies are arranged so as to form vertical columns of support assemblies.
16. The support system according to claim 15 further comprising vertically oriented structural beams, each beam being fixedly attached to the second member of at least two support assemblies in a vertical column of support assemblies.
17. The support system according to any of claims 8-16 wherein the tank includes a top and the surrounding support structure includes a horizontally extending top support structure above the top of the tank, further comprising an array of support assemblies according to claim 1 spaced radially over the surface of the top and providing a point of thermal fixity, said support assemblies having first members rigidly attached to the surrounding support structure and having second members attached to the top with ramping surfaces oriented radially away from the point of rigid attachment.
18. The support system according to claim 17 wherein the second members are rigidly attached to the top through load-bearing insulation.
19. The support system according to any of claims 8-16 wherein the tank includes a top and the surrounding support structure includes a horizontally extending top support structure above the top of the tank, further comprising a rigid attachment rigidly securing a point of said top to said top support structure, and support assemblies according to claim 1 arrayed in a grid pattern across the top.
20. The support system according to any of claims 8-17 further including vertical keys and engageable keyways attached to two or more parallel side walls and their respective surrounding support structure.